IT Unit 3

Topic 1

# Ch 1 Organisations & Data Management

**Characteristics of data types, p 22**

**Elaborate under each of the following data types:**

1. Text, (string)

This type of field holds a mix of characters (letters, numbers, special characters) – alphanumeric with a limit of 255 characters

1. Numeric – integer, floating point

These fields will only allow number s to be entered. Often used in calculations. Integers: whole numbers. Floating point: numbers in decimals

1. Date

This field uses numbers and or letters to represent the date

1. Character

This is a text field that will only accept a single alphanumeric character which represents an option such as M for male and is often used for multiple choice

1. Boolean

A Boolean is categorized data in questions such as yes/no, true/ false, on/off and so on

**Databases and database terminology, p 23**

1. What is a database?

A database is software used to hold and retrieve data.

1. Explain the relationship between fields, records and tables.

Columns are represented by fields, Rows a represented by a record and together they form a table were elements of the table represent data from the fields and records

1. Explain the purpose of the following objects in a database: forms, queries, reports & macros.

Macros are automated shortcuts which will carry out a set of predetermined tasks.

Forms allow users to input data into an underlying table.

Queries allow the user to select data needed to make a report

A report formats a queries data and allows you to summarize the data into statistics

1. What is the purpose of SQL?

A SQL (Structured Query Language) is a way of standardising data to manage a database

1. Distinguish between a flat file and a relational database? What are the advantages of using a relational data base?

A flat file database is a database that stores data in a single table but a relational database uses multiple tables to store data to the correct table determined by the relationship between them. The relational database is often used more than the flat file database as it has more options for storage to keep it organised and reduce redundant data

**Relational databases, p 25**

1. What does RDBMS refer to?

Relational database management system

1. Explain with e.g. the following different types of relationships between tables in a relational database.
   1. One-to-one relationship

Is used when a record in one table is connected to only one record in a second table

* 1. One-to-many relationship

Indicates that one record in the first table can be connects to more than one record in a second table

* 1. Many-to-many-relationship

Indicates that many records in the first table can be connects to more than one record in a second table

1. What is meant by a foreign key?

A foreign key is created when a primary key of one table is used on another making it foreign.

**Creating an RDMS structure, p 26**

1. Why is it important to consider how to structure the data in a database? What needs to be considered?

It is important to plan to maximise efficiency of the relational database structure. And determining the entities need to be identified and explored in a problem starting with what the entity is (person, place or thing), find the characteristics if the entities, normalise the table to reduce redundant data and establish a primary key

1. What is the purpose of an entity relationship diagram? (Go to p 28 to answer the following).

To establish the interrelationship between different data element and show the connection

1. What are entities, use an e.g. from p 28, and how are they represented?

Entities are things in problems such as a person, place or thing and in a library database would consist of books, library, authors and readers.

1. What are the attributes and how are they represented?

Attributes or character person, place or thing are the fields of a table, in a ERD the attributes are a topics on a apart of an expanding tree coming off the entities for example the entity books has the attributes title, date published and ISBN.

1. How are relationships represented?

With lines connecting the entities with either lines, letters, number and arrows

1. What is the difference between the Chen and Bachman models of representing ERD’s?

The Chen model is represented more by a flow chart and is more artistic then the bachman style which represents more of a design view of access databases